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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,454	01/02/2001	Stefan Dyckerhoff	0023-0014	7151

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EXAMINER
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PEZZLO, JOHN

ART UNIT	PAPER NUMBER
2662	8

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/751,454

Examiner

John Pezzlo

Applicant(s)

DYCKERHOFF ET AL.

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 22-24, 26-29 and 42-72 is/are rejected.
- 7) ☒ Claim(s) 10-21, 25, and 30-41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

I. Claims 42-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 16 of U.S. Patent No. (case allowed - number not yet assigned) 09/534,838. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are directed to receiving packets and processing the packets using a load balancing procedure, which directs the received packets to a packet processor in order to balance the load among the packet processors.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art that distributing packets according to a load balancing scheme comprises a plurality of counters for measuring the bandwidth of data packets transferred from the bandwidth divider to a respective packet processor and transferring a data packet to a selected packet processor based on the contents of the plurality of counters in order to load balance the packet processors.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

II. Claims 1-8, 22, 23, and 26-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Sindhu et al. (US 5,905,725) hereinafter Sindhu.

1. Regarding claims 1 and 26 – Sindhu discloses at least one sprayer configured to receive packets on at least one incoming packet stream and distribute the packets according to a load balancing scheme (round robin procedure), refer to Figures 2B (callouts 107 and 100) and 5B and column 2 lines 14 to 67 and column 4 lines 21 to 51.

Sindhu discloses a plurality of packet processors configured to receive the packets from the at least one sprayer and process the packets to determine routing information for the packets, refer to Figure 5A (callouts 514, 515, 510, and 505) and column 2 lines 14 to 67 and column 5 lines 26 to 53.

Sindhu discloses at least one desprayer configured to receive the processed packets from the packet processors and transmit the packets on at least one outgoing packet stream, refer to Figure 2B (callouts 102 and 108) and column 2 lines 14 to 67 and column 4 lines 21 to 51.

Art Unit: 2662

2. Regarding claim 2 – Sindhu discloses wherein the at least one sprayer includes a plurality of sprayers, each of the sprayers being connected to distribute packets to each of the packet processors according to the load balancing scheme (round robin procedure), refer to Figures 2B (callouts 107 and 100) and 5B and column 4 lines 21 to 51 and column 2 lines 14 to 67 and column 5 lines 26 to 53.

3. Regarding claim 3 – Sindhu discloses at least one receive interface configured to receive the packets from the at least one incoming packet stream, refer to Figures 2B (callouts 107 and 100) and 5B and column 2 lines 14 to 67 and column 4 lines 21 to 51.

Sindhu discloses a shared memory configured to store the packets received by the at least one receive interface, refer to Figure 5A (callouts 514, 515, 510, and 505) and column 2 lines 14 to 67 and column 5 lines 26 to 53.

Sindhu discloses a plurality of transmit interfaces configured to transmit the packets stored in the shared memory to the packet processors, refer to Figure 2B (callouts 102 and 108) and column 2 lines 14 to 67 and column 4 lines 21 to 51.

4. Regarding claim 4 – Sindhu discloses a plurality of cell memories configured to store packet data and a pointer, at least one of the cell memories being linked to another one of the cell memories via the pointer in the at least one cell memory, refer to Figures 6 and 9 and column 6 lines 24 to 67 and column 8 lines 33 to 65.

5. Regarding claims 5 and 28 – Sindhu discloses wherein the cell memories are linked

Art Unit: 2662

together to form logical queues in the shared memory, the logical queues corresponding to at least an input queue and an output queue of variable size, refer to Figure 7 and column 7 lines 5 to 67.

6. Regarding claims 6 and 27 – Sindhu discloses a receive controller configured to divide the packets received by the at least one receive interface into a plurality of cells of a predetermined size and store the cells in the shared memory, refer to Figures 2B (callouts 107 and 100) and 5B and column 2 lines 14 to 67 and column 4 lines 21 to 51.

7. Regarding claims 7 and 28 – Sindhu discloses wherein the receive controller is further configured to link the cells of a packet together within the shared memory, refer to Figures 6 and 9 and column 6 lines 24 to 67 and column 8 lines 33 to 65.

8. Regarding claim 8 – Sindhu discloses a transmit controller configured to read the cells of a packet from the shared memory and identify one of the transmit interfaces to transmit the packet, refer to Figure 2B (callouts 102 and 108) and column 2 lines 14 to 67 and column 4 lines 21 to 51.

9. Regarding claim 22 – Sindhu discloses wherein the at least one sprayer, the packet processors, and the at least one desprayer are integrated on a single chip, refer to Figures 19-21 and column 12 lines 49 to 67 and column 13 lines 1 to 10.

Art Unit: 2662

10. Regarding claim 23 – Sindhu discloses wherein the at least one sprayer, the packet processors, and the at least one desprayer are provided on separate boards connected via a midplane, refer to Figures 2B and 11 and column 9 lines 18 to 61.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

III. Claim 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sindhu (same as above).

1. Regarding claim 24 – Sindhu discloses a router, which includes input ports and multiplexers (sprayers) and output ports and demultiplexers (desprayers) and a controller and a shared memory, which comprises dividing packets into cells and storing the cells in the shared memory using a load balancing scheme, round robin procedure.

Sindhu does not expressly disclose wherein the at least one sprayer includes a plurality of sprayers and the at least one desprayer includes a plurality of desprayers, the sprayers and the desprayers being provided together on a plurality of sprayer/dsprayer boards, and each of the packet processors being provided on a separate packet processor board.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to architect the router using common boards based on like functions such as input boards, output boards, and processor boards in order to reduce cost and stock standard items.

IV. Claims 9 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sindhu (same as above) in view of Sandquist (US 5,506,841).

1. Regarding claims 9 and 29 - Sindhu discloses a router, which includes input ports and multiplexers (sprayers) and output ports and demultiplexers (desprayers) and a controller and a shared memory, which comprises dividing packets into cells and storing the cells in the shared memory using a load balancing scheme, round robin procedure.

Sindhu does not expressly disclose a scheduler configured to preserve an order of the packets through the network device by determining a dispatch time for each of the packets received by the at least one sprayer and scheduling the packets for transmission from the at least one sprayer at the corresponding dispatch times.

Sandquist teaches receiving packets made up of ATM cells and tagging the packets for a dispatch time for transmitting the packets in order to preserve the order of the ATM cells for the packets, refer to Figure 5 and column 2 lines 25 to 67 and column 3 lines 1 to 37 and column 5 lines 19 to 45.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to utilize the scheduling features of Sandquist with the router of Sindhu. The suggestion/motivation for doing so would have been that Sindhu discloses a key for storing the



Art Unit: 2662

packet and the key could also include the tag of Sandquist for scheduling the dispatch times. The benefit being the cell (packet) ordering would be preserved.

*Allowable Subject Matter*

Claims 10-21, 25, and 30-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Allen, Jr. et al. (US 6,404,752 B1) discloses a network switch using network processor and methods.
2. Ferguson et al. (US 5,909,440) discloses a high speed variable length best match look-up in a switching device.
3. Li et al. (US 5,757,771) discloses a queue management to serve variable and constant bit rate traffic at multiple QoS levels in an ATM switch.

Art Unit: 2662

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Pezzlo whose telephone number is (703) 306-5420. The examiner can normally be reached on Monday to Friday from 8:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached on (703) 305-4744. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C.

or faxed to:

(703) 872-9306

For informal or draft communications, please label "PROPOSED" or "DRAFT"

Hand delivered responses should be brought to:

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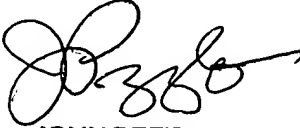
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John Pezzlo

8 July 2004



**JOHN PEZZLO**  
**PRIMARY EXAMINER**